IN THE SPECIFICATION:

Please insert the following new paragraph after the Title and before the first paragraph on page 1:

-- This application is the U.S. National Phase under 35 U.S.C. § 371 of International Application No. PCT/JP2004/016332, filed November 4, 2004, which in turn claims the benefit of Japanese Application No. 2003-374724, filed November 4, 2003 and Japanese Application No. 2004-194195, filed June 30, 2004, the disclosures of which Applications are incorporated by reference herein in their entirety. –

Please amend paragraph 13 as follows:

[0013] Each pixel may have a pixel lens on a light incidence side thereof. In such a case, instead of the ~~following~~ aforementioned expression (1), the following expression (2) is satisfied for the pixel, from among the pixels included in the imaging area of unit corresponding to each of the micro lenses, positioned farthest from the optical axis of the corresponding micro lens:

$$\arctan(L/f) \leq \arcsin NA \qquad (2),$$

where

NA is a numerical aperture of a pixel lens.

Please amend paragraph 14 as follows:

[0014] Also, each pixel may have a pixel lens on a light incidence side thereof, and at least one pixel lens may be positioned such that an optical axis thereof is displaced from a center of a photo-electric conversion portion of a corresponding pixel. In such a case, instead of the ~~following~~ aforementioned expression (1), the following expression (3) is satisfied for the pixel, from among the pixels included in the imaging area of unit corresponding to each of the micro lenses, positioned farthest from the optical axis of the corresponding micro lens:

$$\arctan(L/f) - \varphi \leq \arcsin NA \quad (3),$$

where

NA is a numerical aperture of a pixel lens, and

φ is an angle formed between a normal line of the first flat surface and a straight line connecting an apex on a light incidence side of a pixel lens and a center of an imaging area of unit.

Please amend paragraph 51 as follows:

[0051] As described in Embodiment 2, when a numerical aperture of the pixel lens ~~13~~ <u>14</u> is NA, the angle θ depends on the NA, and substantially, $\theta = \arcsin NA$ is followed. Also, as shown in FIG. 7, when a focal length of the micro lens 21 is f and a diameter of a circle circumscribing an imaging area of unit (i.e., an image projection area, within the solid-state imaging sensor 10, along the optical axis 21a of the imaging unit 40) corresponding to one micro lens 21 is L, an angle of incidence is $\alpha = \arctan(L/f)$ at a pixel (light receiving section 12) farthest from the optical axis 21a.

Please amend paragraph 67 as follows:

[0067] As described above, according to the present embodiment, it is possible to solve a problem that, in each imaging unit 40, an output signal intensity <u>is reduced</u> due to a reduction in quantity of light entering the light receiving section 12 as the light receiving section becomes farther from the optical axis 21a of the micro lens 21. Accordingly, an image with a high quality as far as a periphery thereof can be obtained.

Please amend paragraph 69 as follows:

[0069] In FIGS. 11 and 12, the imaging device comprises a solid-state imaging sensor 110 (e.g., a CCD or a CMOS) including a large number of pixels 111 arranged in lateral and longitudinal directions on a first flat surface, and a micro lens array 120 including a plurality of micro lenses ~~21~~ <u>121</u> arranged in a lateral and longitudinal directions on a second flat surface separately provided so as to be parallel to the first flat surface. One micro lens 121 corresponds to an

imaging area of unit including a plurality of the pixels 111. The solid-state imaging sensor 110 includes a photo-electric conversion portion (light receiving section) 112 for performing a photo-electric conversion with respect to each of the pixels 111, and further includes a large number of pixel lenses 113 on a light incidence side of the large number of pixels 111 so arranged that there is one on one correspondence between the pixel lenses 113 and the pixels 111.

Please amend paragraph 70 as follows:

[0070] A luminous flux from an object enters the plurality of micro lenses 121, and each of the micro lenses 121 forms an optical image of the object on the pixels 111 of a corresponding imaging area of unit. In order to prevent crosstalk from being caused by a light from the micro lens 121 entering the pixel 111 not corresponding to the micro lens 121, a baffle layer ~~30~~ 130 is arranged in a grid manner so as to correspond to positions of the micro lenses 121.

Please amend paragraph 79 as follows:

[0079] FIG. 14 is an enlarged cross sectional illustration showing a vicinity of the light receiving section 112. In FIG. 14, a normal line 110a is defined with respect to the first flat surface where the light receiving sections 112 are arranged. θ is a maximum angle of an incident light which can enter the light receiving section 112. α is an angle of incidence for a light ~~2~~ 102 from the micro lens 121 with respect to the light receiving section 112. Because the pixel lens 113 is displaced with respect to the light receiving section 112, as long as a light has an angle equal to or less than an angle θ with respect to a straight line 113b connecting an apex on a light incidence side of the pixel lens 113 and the center of the light receiving section 112 corresponding to the pixel lens 113, the light can enter the light receiving section 112. φ is an angle formed between the straight line 113b and the normal line 110a of the first flat surface where the light receiving sections 112 are arranged. In order for the light 102 from the micro lens 121 to enter the light receiving section 112, it is necessary to be $\alpha - \varphi \leq \theta$.

Please amend paragraph 80 as follows:

[0080] Here, when a numerical aperture of the pixel lens ~~13~~ 113 is NA, the maximum angle of incidence θ depends on the NA, and substantially, θ = arcsin NA is followed. As shown in FIG. 13, when a focal length of the micro lens 121 is f and a diameter of a circle 141 (see FIG. 1) circumscribing an area (i.e., an image projection area, within the solid-state imaging sensor 110, along the optical axis 121a of the imaging unit 140) where a plurality of the pixels 111 corresponding to one micro lens 121 are positioned is L, an angle of incidence is $\alpha = \arctan(L/f)$ at a pixel (light receiving section 112) farthest from the optical axis 121a. Therefore, the following expression (3) described in the above needs to be satisfied:

$$\arctan (L/f) - \varphi \leq \arcsin NA \qquad (3).$$

Please amend paragraph 83 as follows:

[0083] Next, a method for obtaining an image from a luminous flux having entered each light receiving section ~~12~~ 112 of the solid-state imaging sensor 110 is described with reference to FIGS. 15(A) and 15(B). As FIG. 15(A) shows, in each imaging unit 140, the micro lens 121 of the micro lens array 120 forms an optical image 191 of an object 190 on the solid-state imaging sensor 110. Each light receiving section 112 of the solid-state imaging sensor 110 photo-electric converts the luminous flux having entered. Here, when a vertical axis of the solid-state imaging sensor 110 is an x axis, a horizontal axis thereof is an y axis, and a signal from the light receiving section 112 positioned at (x,y) is I(x,y), signals I(x,y) for all light receiving sections 112 included in the solid-state imaging sensor 110 are read (step 201).

Please amend paragraph 84 as follows:

[0084] Next, the signals I(x,y) from the light receiving section 112 are divided with respect to each imaging unit 140. That is, as shown in FIG. 15(B), when a position of the light receiving section ~~12~~ 112 at an i-th column and k-th row in the imaging unit 140 where the light receiving sections 112 are arranged in m columns × n rows is $(i,k)_{(m,n)}$ and a signal from the light receiving section ~~12~~ 112 is $I(i,k)_{(m,n)}$, the above signal I(x,y) is treated as a signal $I(i,k)_{(m,n)}$ in the imaging

140. Consequently, an image consisted of pixels arranged in m columns × n rows is re-formed with respect to each imaging unit 140 (step 203).